

Treatment of Systemic Bacterial Infections

Use of antibiotics in fish should be based on results of sensitivity testing whenever possible. Since most bacterial infections of fish are gram negative, oxytetracycline is a good broad-spectrum antibiotic that can be delivered in feed, by injection, or in a bath. Baths should only be used when fish are not feeding and injection is not practical. Bath treatments should deliver no less than 750 mg oxytetracycline per 10 gallons of water and must be repeated daily for 10 days. Oral medications should provide 55 mg oxytetracycline per kg body weight for 10 days. Because pet fish patients are so small, it is often necessary to estimate the amount of antibiotic to add to the feed. One gram active drug per pound of feed is a good rule of thumb for many antibiotics. Commercial flake diets are available that contain Terramycin, a product containing oxytetracycline that is FDA approved for use in catfish and salmonids. Romet is a potentiated sulfonamide containing ormetoprim and sulfadimethoxine. It is FDA approved for use in catfish and salmonids and is available in a flake food for tropical fish. The desired dose is 50 mg active drug per kg body weight for 5 days. Romet is not water soluble, so it is not suitable for bath treatments and is not available in an injectable form. Erythromycin delivered in feed at a dose of 100 mg/kg for

14 days is the treatment of choice for *Streptococcus* infections. At the present time, erythromycin is not labeled for aquaculture use.

Treatment of Internal Parasitism

Metronidazole is the treatment of choice for *Hexamita* infections. It can be delivered orally at a dose of 50 mg/kg (approximately 4.5 g per pound of food) for 5 consecutive days. There is a commercially available flake food that contains metronidazole. If fish are anorectic, metronidazole can be provided as a bath delivered at a concentration of 5 mg/L (approximately 250 mg per 10 gallons) daily for 5 consecutive days.

Although tapeworms have not been discussed, the practitioner should be aware that praziquantel is extremely effective in fish and can be delivered as a bath (10 mg/L for 3 hours) or in a medicated food (100 mg/25 g food, daily for 7 days). Praziquantel is also effective against monogenetic trematodes, and there are anecdotal reports that it has some efficacy against digenetic trematodes as well.

Fenbendazole can be used to control enteric nematodes, although complete information on safety and efficacy is lacking. Angel fish in our laboratory that were treated with 11 mg/kg orally for 2 days had some benefit from fenbendazole; however, efficacy of a 3 to 5 day treatment regime should be evaluated.

SUMMARY

Pet fish medicine provides a unique opportunity for small animal practitioners to build their practices by serving a group of clients who have historically been neglected. An increase in demand for veterinary service is anticipated as the aquarium hobby matures and realizes the benefits of accurate diagnosis, responsible therapy, and preventive medicine programs. Veterinarians willing to provide this service must take it upon themselves to attain a level of expertise that will allow them to make substantial contributions to the well-being of their clients' animals and businesses.

RECOMMENDED READING

- Brown, L.A. (Ed). 1993. *Aquaculture for Veterinarians: Fish Husbandry and Medicine*. Pergamon Press, Oxford. 447 pp.
- Gratzek, J.B., and Mathews, J.R. (Eds). 1993. *Aquariology: The Science of Fish Health Management*. Tetra Press, Morris Plains, NJ. 330 pp.
- Post, G. 1987. *Textbook of Fish Health*, Second Edition. TFH Publications, Neptune City, NJ. 288 pp.
- Roberts, R.J. (Ed.). 1989. *Fish Pathology*, Second Edition. Bailliere Tindall, London. 467 pp.
- Stoskopf, M.K. (Ed). 1993. *Fish Medicine*. W.B. Saunders Company, Philadelphia. 882 pp.
- Stoskopf, M.K. (Ed.). 1988. "Tropical Fish Medicine." *Veterinary Clinics of North America: Small Animal Practice* 18(2):474.